AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (original) A method of recovering the status of a collaboration between a plurality of component agents in a multi-agent systems architecture, the method comprising:

processing collaboration information forwarded by a mediator agent for each component agent;

maintaining a collaboration processing status information record derived from the collaboration information provided by each collaborating agent to the mediator agent; and

in the event that a device which affects the collaboration suffers an event which causes one or more component agents to lose its collaboration status, recovering the collaboration status using one or more of said collaboration processing status information records.

2. (original) A method as claimed in claim 1, wherein the mediator agent is arranged to register its mediation service with an administration agent of any multi-agent platform.

3. (original) A method as claimed in claim 2, wherein said component agents subscribe to the mediation service prior to said step of recovering the collaboration status.

4. (currently amended) A method as claimed in ~~any preceding claim~~ claim 1, wherein if a first component agent delegates its role to at least one other delegate component agent, the mediator agent maintains status information on the role of each at least one other delegate component agent.

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5. (currently amended) A method as claimed in ~~any preceding claim~~ claim 1, wherein the mediator agent maintains status information on the role of all delegate agents.

6. (currently amended) A method as claimed in ~~any preceding claim~~ claim 1, wherein the collaboration between said plurality of agents is defined by an interaction plan comprising a global plan and a local plan, wherein the global plan specifies overall interaction steps for each component agent participating in the collaboration and the local plan specifies each collaboration activity for each participating component agent.

7. (currently amended) A method as claimed in ~~any preceding claim~~ claim 1, wherein said collaboration information forwarded to the mediator agent comprises the execution state of a component agent's local plan.

8. (original) A method as claimed in claim 7, wherein the component agent does not store an execution state of that component agent's local plan instance in permanent storage.

9. (original) A method of delegating between a first component agent arranged to perform a predetermined role and another agent in a multi-agent architecture, the component agent and the other agent arranged to communicate via a mediator agent, the method comprising the steps of:

sending a request message from the first component agent to a mediator agent for delegation to another agent;

forwarding the delegation request message to the other agent by the mediator agent;

receiving the delegation request at the other agent;

processing the delegation request and providing an indication to the mediator agent that the delegation request has been accepted;

transferring from the mediator agent, information comprising a local workflow case to the other agent from the first component agent.

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10. (original) A method as claimed in claim 9, wherein prior to said step of forwarding the delegation request, the method further includes the steps of:

retaining all messages at the mediator agent until the other agent is launched; and

subscribing the mediator agent to the other agent.

11. (original) Apparatus arranged to recover the status of a collaboration between a plurality of component agents in a multi-agent architecture, the apparatus comprising:

at least one processor arranged to process collaboration information forwarded by a mediator agent for each component agent;

storage means arranged to maintain a collaboration processing status information record derived from the collaboration information provided by each collaborating agent to the mediator agent; and

in the event that a device which affects the collaboration suffers an event which causes one or more component agents to lose its collaboration status, means to provide information derived from said one or more of said collaboration processing status information records in a form suitable for updating each component agent affected by the event with current collaboration status information.

12. (original) A mediator agent arranged to provide a mediation service to recover the status of a collaboration between a plurality of component agents in a multi-agent systems architecture, the mediator agent comprising:

means to receive and store collaboration information provided by each component agent;

means to update the collaboration information to generate at least one processing status information record; and

in the event that a device which affects the collaboration suffers an event which causes one or more component agents to lose its collaboration status, recovering the

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collaboration status using one or more of said collaboration processing status information records.

13. (original) A component agent arranged to provide recovery information to a mediator agent, the component agent having means to forward information indicating its local interaction plan state to a mediator agent, the mediator agent as claimed in claim 12.

14. (original) A component agent arranged to provide recovery information to a mediator agent, the component agent having means to store information indicating its local interaction plan state and to forward information on said interaction state to a mediator agent.

15. (currently amended) A computer program product comprising a suite of one or more programs arranged to perform a method according to ~~any one of claims 1 to 10~~ claim 1.

16. (original) A computer program product comprising a component in an on-line auction application.

17. (original) A computer program product comprising a component in an on-line gambling application.

18. (currently amended) A network comprising one or more devices arranged to implement the method of ~~any one of claims 1 to 10~~ claim 1.

19. (original) A network comprising a plurality of apparatus as claimed in claim 11.

20. (original) A multi-agent architecture comprising a plurality of component agents and a mediator agent, the mediator agent arranged to mediate between a plurality of said component agents performing a collaboration, the architecture being arranged to perform steps in the method according to claim 1.

21. (original) A signal comprising a service subscription message arranged to subscribe a component message to a mediator service supported by a mediator agent,

the mediation service comprising a method delegating between a first component agent arranged to perform a predetermined role and another agent in a multi-agent architecture as claimed in claim 10.

22. (original) A workflow engine architecture arranged to be embedded into a component agent, the workflow engine architecture comprising:

a scheduler;

a task manager;

a state manager;

a tool library; and

a workflow case base.

23. (original) A method of restarting a local workflow case dynamically given by a mediator agent, the method comprising:

verifying the validity of received workflow case from a mediator agent;

storing the valid workflow case into local workflow case base; and

synchronising the local workflow case with global workflow case of the mediator agent by executing the buffered messages from a mediator agent.

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